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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,557	04/06/2001	Michael Mitzenmacher	H-102	1016
37275	7590	09/16/2004	EXAMINER	
LAW OFFICE OF A.P. DURIGON 20 EUSTIS STREET CAMBRIDGE, MA 02140			PHAM, THOMAS K	
			ART UNIT	PAPER NUMBER
			2121	

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/827,557

Applicant(s)

MITZENMACHER, MICHAEL

Examiner

Thomas K Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/6/01</u> . | 6) <input type="checkbox"/> Other: _____ |

First Action on the Merits

1. Claims 1-17 of U.S. Application 09/827,557 filed on 04/06/2001 are presented for examination.

Quotations of U.S. Code Title 35

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claim Objections

6. Claims 1, 5, 6 and 12 are objected to because of the following informalities: for the purpose of clarity, the word “its” (for example, in lines 4 and 9 of claim1) should be change to “the cache server’s ” in each of the above claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. Claims 1, 6, 10, 12 and 16 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 6 and 12, the subject matters of (1) (2) and (3) are not logically stated. The subject matter of (2) need to happen first before (1) can be stored in the cache memory. For example, the Bloom filter data array need to be compressed to a transmission compression size first before they can represent Web objects stored in the cache server’s cache memory as **compressed** Bloom filter data array. Appropriate correction is required.

Similarly, claims 10 and 16, the 2nd limitation “compressing the Bloom filter ... compression size” needs to happen first before the 1st limitation “representing the data contents ... compression size” can be stored in the memory. Appropriate correction is required.

Claim Rejections - 35 USC § 103

8. Claims 1-2, 4-7, 10-13 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over “Summary Cache: a Scalable Wide-Area Web Cache Sharing Protocol,”

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Proceedings of SIGCOMM' 98, (1998: pp 254-265) by ("Fan") in view of U.S. Patent No. 4,882,754 ("Weaver").

Regarding claims 1, 5, 6, 10, 11, 12, 16 and 17

Fan teaches a distributed, bloom filter Web server providing reduced probabilities of false positives, comprising: a plurality of cache servers each having a cache memory and a cache processor coupled to the memory that is operative to represent Web objects stored in the cache server's cache memory as a Bloom filter data array having a preselected number of hash functions and a preselected array size which have been chosen to minimize the rate of false positives (page 259 col. 2 second paragraph, "The graph in Figure 3 shows ... by allocating more memory"), and to periodically disseminate the Bloom filter data array to neighboring servers when there is a change in the cache server's stored Web objects (page 263 col. 2 second paragraph, "We modify Squid 1.1.14 to ... when it recovers"). Fan does not teach compressing the data to a preselected transmission compression size. However, Weaver teaches a data compression system including a linear digital compression filter to compress data to a preselected transmission size in response to a measure of the transmitter buffer fullness (col. 7 lines 22-41, "A flow diagram showing ... transmission of each block of signals") for the purpose of preventing overflowing the transmitter buffer. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the data compression system of Weaver with the Bloom filter of Fan because it would provide for the purpose of preventing overflowing the transmitter buffer.

Regarding claim 2

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Fan teaches the Bloom filter data array size is made as large as possible for a given cache memory size and the number of hash functions is chosen to minimize the rate of false positives (page 260 col. 2 third paragraph, "Figure 7 shows the ... this is a good tradeoff") for a preselected transmission compression size.

Regarding claim 4

Fan and Weaver do not teach the cache processor is further operative to store in its cache memory at least one other decompressed Bloom filter data array each representative of the Web objects of another, at least one neighboring Web server. However, it would have been obvious to one of ordinary skill in the art for Weaver to store in its cache memory also at least one other decompressed data because it would provide when it decompressed data received from other servers.

Regarding claims 7 and 13

Fan teaches the nodes are Web proxy servers (abstract).

9. Claims 3, 8-9 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan in view of Weaver and further in view of U.S. Patent No. 6,052,120 ("Nashi").

Regarding claim 3

Fan and Weaver teach the Bloom filter data array but do not specifically teach arithmetic coding is employed to compress data to transmission compression size. However, Nashi teaches employing arithmetic coding to compress data to transmission compression size prior to transmission (col. 15 lines 37-43, "embedded control system 122 ... of the compression algorithm) for the purpose of preserving the bandwidth available to the short-range transceiver.

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Therefore, it would have obvious to one of ordinary skill in the art at the time of the invention to incorporate the compression for mobile device of Nashi with the system of Fan and Weaver because it would provide for the purpose of preserving the bandwidth available to the short-range transceiver.

Regarding claims 8 and 14

Nashi teaches compressing audio data object prior to transmission on a mobile device (col. 4 lines 20-26, “graphical data may be ... to the portable display tablet”).

Regarding claims 9 and 15

Nashi teaches predetermined compression algorithm is arithmetic coding (col. 12 lines 48-65, “A Web browser application ... and host computer system 14”).

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (703) 305-7587 or the new number (571) 272-3689 beginning around mid. October 2004, Monday - Friday from 8:00 AM - 5:00 PM EST or contact Supervisor *Mr. Anthony Knight* at (703) 308-3179 (or 571 272-3687 starting around mid. Oct. 2004).

Any response to this office action should be mailed to: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**. Responses may also be faxed to the **official fax number (703) 872- 9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas Pham
Patent Examiner

TP

September 6, 2004


Anthony Knight
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